

## Title (en)

Probe tip design for optical near-field microscope

## Title (de)

Design einer Sondenspitze für ein optisches Nahfeldmikroskop

## Title (fr)

Design d'un embout de sonde pour un microscope à champs proche

## Publication

**EP 1385175 A1 20040128 (EN)**

## Application

**EP 03254624 A 20030724**

## Priority

- JP 2002217084 A 20020725
- JP 2003018997 A 20030128

## Abstract (en)

An optical waveguide device increases the intensity of light transmitted through an optical waveguide for a reduced cost without expanding the area of the light. The optical waveguide device according to the present invention includes an optical waveguide and defining surfaces defining the optical waveguide. The defining surfaces are formed of plasmon activating medium. The defining surface include a pair of inner parts that face each other along a direction perpendicular to a light transmission direction. The distance between the inner parts is less than the half of the wavelength of the light transmitted through the optical waveguide. <IMAGE>

## IPC 1-7

**G12B 21/06**

## IPC 8 full level

**G01Q 60/18** (2010.01); **G01Q 60/22** (2010.01); **G01Q 80/00** (2010.01); **G02B 6/00** (2006.01); **G02B 6/10** (2006.01); **G02B 6/122** (2006.01); **G02B 6/24** (2006.01); **G11B 7/135** (2006.01); **H01L 21/027** (2006.01)

## CPC (source: EP US)

**B82Y 20/00** (2013.01 - US); **B82Y 35/00** (2013.01 - US); **G01Q 60/22** (2013.01 - EP US); **G02B 6/10** (2013.01 - EP US); **G02B 6/1226** (2013.01 - EP US); **G02B 6/241** (2013.01 - EP US)

## Citation (search report)

- [Y] EP 0185782 A1 19860702 - IBM [US]
- [Y] WO 0210830 A2 20020207 - ZETETIC INST [US], et al
- [Y] U. SCHRÖTER, A. DEREUX: "Surface plasmon polaritons on metal cylinders with dielectric core", PHYSICAL REVIEW B, vol. 64, 11 September 2001 (2001-09-11), pages 125420-1 - 125420-10, XP002259671
- [Y] JOHNSON P B ET AL: "OPTICAL CONSTANTS OF THE NOBLE METALS", PHYSICAL REVIEW, B. SOLID STATE, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 6, no. 12, 15 December 1972 (1972-12-15), pages 4370 - 4379, XP001031007

## Cited by

GB2528576A

## Designated contracting state (EPC)

DE FR GB

## DOCDB simple family (publication)

**EP 1385175 A1 20040128**; **EP 1385175 B1 20070425**; CN 1284986 C 20061115; CN 1482473 A 20040317; DE 60313403 D1 20070606; DE 60313403 T2 20070906; JP 2004109965 A 20040408; JP 3668779 B2 20050706; SG 105581 A1 20040827; US 2004062477 A1 20040401; US 6947634 B2 20050920

## DOCDB simple family (application)

**EP 03254624 A 20030724**; CN 03143816 A 20030725; DE 60313403 T 20030724; JP 2003018997 A 20030128; SG 200303886 A 20030725; US 62794403 A 20030725